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THE UNIVERSITY OF ALBERTA

THE CONTRIBUTION OF COUNSELLING IN THE POST-INTERACTIVE PHASE OF COMPUTER-ASSISTED CAREER GUIDANCE

BY

STANLEY A. ROSS

A THESIS
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ABSTRACT

This study investigates the contribution of counselling after computer interaction in a computer-assisted career guidance system. Specifically, it considers the contribution of the post-interaction step of the CHOICES system in reducing career indecision. The subjects were grade 11 students in an academic high school. There were two treatment groups (n=25 for each) and a control group (n=23). The Career Decision Scale and a supplementary instrument were administered at five points in the program. The analysis of variance for repeated measures and multiple comparison procedures were employed. Although the post-interaction counselling step of CHOICES did not show a significant effect on career indecision, the entire program including post-interaction counselling did have a significant effect at the .05 level. Wide variation in responses between subjects is noted as a major reason for the lack of significance and points to the idiosyncratic nature of the career planning process.

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CHAPTER ONE

INTRODUCTION

Background

The last ten years have seen explosive growth in the development and use of computer-assisted career guidance systems. Studies have looked at a wide range of issues related to computer-assisted career guidance (CACG). Such issues include the role of the computer in career guidance, client satisfaction with CACG, effectiveness of CACG in developing career maturity, use of CACG with special populations, and the development of CACG in general. The studies of these issues have contributed to a growing body of knowledge about CACG. But many other issues remain to be addressed in order to achieve a more thorough understanding of CACG (Pyle, 1984; Cairo, 1983).

The issue that forms the major direction of inquiry in this study is the contribution of counsellor involvement in CACG. Computer-assisted career guidance, as used in this study, is any form of career guidance that uses interaction with career oriented software as one of its components. The role of the computer interaction is to assist in the career guidance process, but there is some tendency to view it as the dominant component of the process. The role of the counsellor becomes obscured and sometimes ignored or forgotten. This attitude is manifested in numerous studies that use the computer interaction as an entire treatment instead of an intervention that is one component of a treatment program. These studies typically give some attention to a counselling role before computer interaction, the nature of which is more to prepare the client to use the software than to provide a guidance intervention. The counselling provided after the computer interaction is usually

minimal or non-existent. Thus the computer system is more than *assisting* in the career guidance program; it essentially *is* the program.

Given the differing purposes and levels of sophistication of CACG systems, some systems will perform more of the total career guidance process than others. Clyde's (1979) continuum of systems places information retrieval at one pole and provision of guidance at the other. Systems nearer the guidance end of the continuum require less counsellor intervention than systems that emphasize information retrieval. But no CACG system can perform the entire career guidance process effectively without some counsellor mediation (Harris-Bowlsbey, 1983b).

Another unattended issue is that of the effect of CACG over extended periods of time. Studies measuring effectiveness of CACG systems have shown positive results in terms of career maturity and decision (Glaize & Myrick, 1984; Pinder & Fitzgerald, 1984) but the measurements are typically taken soon after the treatment is finished. No consideration has been made to determine if these gains remain or diminish with the clients.

One CACG system that stands near the middle of the continuum of systems is CHOICES. The developers of CHOICES did not consider it to be a stand alone system; counsellor involvement was considered important to its effective use (Jarvis,1978). This is demonstrated in their three step design for using CHOICES. Step One involves the counsellor preparing the client. The client works on self-assessment. In Step Two, the counsellor reviews the self-assessment with the client (This is called pre-interaction counselling.) and then the client interacts with CHOICES. Finally, the counsellor assists the client in understanding the information provided by CHOICES and in processing it to the point of developing an action plan. This is called post-interaction counselling, the third step in CHOICES.

The author's experience has shown that CHOICES is frequently used without completing the three step process. By following the pattern described above, that is, by viewing CACG systems as entire treatments rather than as components of a larger program, CHOICES is often reduced to computer interaction preceded by some brief client preparation. Active counsellor involvement is minimal, especially after interacting with CHOICES. This is unfortunate because at this point the client is frequently experiencing some degree of confusion. Faced with several lists of occupations, he or she needs guidance in making sense of these results, processing them into usable information and setting up an appropriate action plan. The counsellor is needed to provide that guidance.

Purpose of the Study

The main thrust of this study is to investigate the contribution of the counselling role in CACG. In particular, the study examines the contribution the counsellor's involvement makes towards reducing career indecision after the client has interacted with the computer. The secondary issue to be investigated is the stability of career decision over time after participation in different steps of CACG.

Definition of Terms

Career continues to be popularly defined as a series of occupations one holds through the lifespan, but developmental career theorists such as Super have expanded the understanding of the term to mean "the sequence of occupations and other life roles which combine to express one's commitment to work in his or her total pattern of self development." (Super, 1976, p. 4)

Career guidance is the process of assisting an individual to arrive at well thought-out career related decisions. As a career develops over a lifetime, a progression of decisions must be made. This requires that career guidance be employed over the lifespan rather than once for all time.

CACG (Computer-Assisted Career Guidance) is career guidance that uses interaction with career oriented software as one of its components.

Career Indecision is uncertainty about career direction and plans. There are many possible reasons for this uncertainty.

Pre-interaction Counselling is the part of the CHOICES career guidance process in which the counsellor prepares the client to effectively interact with CHOICES by reviewing the work done by the client in the Guide.

Post-interaction Counselling is the part of the CHOICES career guidance process in which the counsellor assists the client to understand the content and relevance of the results of the CHOICES interaction and develop action plans that will lead to decision and implentation of career goals.

Overview

In Chapter Two, the review of the literature for CACG leads to the posing of the research questions addressed in this study. A description of the CHOICES system is presented.

The experimental design, including subjects, procedures and instruments, is

detailed in Chapter Three. The experiment was conducted as a field study in a high school. Repeated measures of career indecision were taken from subjects in two treatment groups as they worked through the three steps of CHOICES. A control group was measured over the entire experimental period.

The results of the experiment are reported in Chapter Four. The analysis of variance for repeated measures was used with planned multiple comparisons to test the hypotheses. An extensive post-hoc analysis is included.

The results of the study are discussed in Chapter Five. The chapter closes with several recommendations for future research and implications of the findings for career guidance and research.

CHAPTER TWO

REVIEW OF THE LITERATURE

This chapter begins with a review of the research and literature concerning computer-assisted career guidance over the past decade. From the review it is discovered that many issues have scarcely been addressed. Two such issues are identified and discussed. The roles of counsellor and computer in CACG are discussed and a model integrating the two is presented. CHOICES, the CACG system selected for use in this study, is introduced and research on CHOICES is reviewed. The three questions to be addressed in this study are stated in a summary at the end of the chapter.

Review of Computer-Assisted Career Guidance Research

The explosive growth of computer-assisted career guidance in the last ten years has been accompanied by a growing body of literature. Several researchers have written reviews of this development. Cairo (1983) considered the effects of computer-assisted counselling systems and drew several conclusions, while emphasizing how little is known about the impact of such systems. Two reviews related the British experience in the field (Watts & Ballantine, 1983; Sugarman, 1986) and British advances were described against the background of North American and European developments by Watts (1986). This later work of Watts also considered the role of the computer in career guidance. These same two aspects, role and development, were examined by Sugarman (1986).

Some studies considered client satisfaction with particular systems. A field trial of the DISCOVER system found student reaction to be favorable (Rayman, Bryson,

& Bowlsbey, 1978). In another study, undergraduate students rated the DISCOVER-II CACG system and the Self-Directed Search, a paper-and-pencil instrument, for satisfaction (Karriker, Miller, Springer & Soper, 1985). Most students preferred the DISCOVER-II system. Another system, CONSIDER/GIS, was assessed by counsellors and clients for satisfaction with the system (Thompson & LaRochelle, 1985). Various aspects of the usage of CONSIDER/GIS were also examined. The usage of other systems has also been explored using DISCOVER and SIGI (Sampson, Shahnasarian & Reardon, 1987) and GRADSCOPE (Hesketh, Wilson, Faulkner & Jackson, 1987).

Johnson (1985) compared both the satisfaction and effectiveness of a modest computer-assisted system with that of a counsellor-assisted approach in a high school. The computer-assisted approach was favored by students. No significant difference in effect was found between the two approaches in terms of perceived career options and career exploratory behaviors. Another study compared DISCOVER with a group counselling approach for effects on career maturity and decision (Glaize & Myrick, 1984). It reported no significant differences between the effects of the two approaches although both were found to be more effective than no career guidance at all. The CHOICES system was shown to be effective in improving career decision-making in a sample of university students (Pinder & Fitzgerald,1984). In a broader vein, one study considered the impact of a CACG system on a community college (Colozzi & Haehnlen, 1982).

Computer-assisted career guidance has been considered in relation to special populations. Hearing impaired students were helped to relate their values to the career decison-making process by using the SIGI system (McKee & Chiavaroli, 1984). School children with a variety of learning disabilities found the Career

Planning System "interesting, enjoyable and usable" (Long, 1984). Disadvantaged vocational students using a computer-assisted career information system learned more than those in a counsellor-based group (Maola & Kane, 1976). Sampson, McMahon and Burkhead (1985) examined the application of computer-assisted career guidance in the rehabilitation setting. Rayman (1981) considered computer-assisted career guidance for adults. A system for navy recruiting was described by Baker (1985). The Officer Career Information and Planning System (OCIPS) was designed to further the professional development of adults in the work force, in this case army officers (Philips, Cairo & Myers, 1981).

Haring-Hidore (1984) took a different approach by considering which students do not use CACG. Low achievers, female students, and students from minorities were hypothesized as likely none-users. She suggested that these groups may have common characteristics that inhibit their use of CACG systems. Dungy (1984) reported that clients possess differing levels of readiness for CACG.

Concern has been voiced that CACG systems should have a sound theoretical basis and that counsellors need to examine the assumptions that underly the use of such systems (Snipes & McDaniels, 1981; Krumboltz, 1985). Although many systems do lack such a basis, there are several that have been developed from a certain theoretical position. SIGI is based "on a humanistic philosophy, a theory of guidance that emphasizes individual values, a carefully analyzed store of occupational information and a strategy for processing information" (Katz & Chapman, 1978, p.57). Users work through sections of the system that involve values clarification, occupational investigation, planning and evaluation of strategy. Another system, DISCOVER, is described as a "computerized systematic career guidance program" (Rayman & Harris-Bowlsbey, 1977). It is composed of 11 modules that relate to the

developmental approach to career guidance. A different approach to CACG has been offered in the Career Decision Aiding System (CDAS). Based on decision theory, CDAS seeks to improve the quality of the user's career decisions by focusing on the process and determinants of choice (Wooler & Lewis, 1982).

Two Issues Considered

Despite the proliferation of studies and reviews of computer-assisted career guidance, several issues have scarcely been addressed (Pyle, 1984; Cairo, 1983). This study will examine two of these issues: primarily, the effect of counsellor involvement after the use of a CACG system and, secondarily, the effect of computer-assisted career guidance over time.

CACG studies typically follow one of two designs: treatment - posttest or pretest - treatment - posttest. The treatment is the subject's interaction with the computer system. The posttest is administered immediately or soon after completion of the treatment. Few studies have a second, time-delayed posttest to demonstrate if gains made in career decisiveness stay with the subject or diminish months after using the system. Several of the studies referred to above found that subjects were satisfied after using CACG systems. But these studies do not explain how the level of satisfaction compares to the level experienced six months later. Studies with follow-up posttests are needed to answer these questions.

In the two typical research designs previously mentioned, the treatments usually consist of the subject's interaction with the system. First, the subject uses the CACG system; then the subject is tested for effect. By conducting studies in this way, researchers are working with the implicit assumption that a CACG system is a complete treatment in its own right. They are implying that it is valid to use CACG

systems on a stand-alone basis. This assertion is explicitly made by some writers. Hansen (1986) identified five stages through which computer-assisted assessments have evolved and related these to CACG. In the current fifth stage, he stated that "The systems all have the potential to be self-contained." (p. 50). Evidently, Hansen believes that it is possible to have CACG systems that are complete treatments in themselves. In a report (Heppner & Johnston, 1985) giving criteria for comparison of CACG systems, one of the questions given for deciding program needs is this: "Will the system be used in conjunction with individual career counselling, with a course, or as a separate service?" (p. 157). Heppner and Johnston did not endorse the use of a system as a separate service but the absence of any comment concerning this leaves the reader of the report with the sense that this is a viable option. Not only do many researchers hold this view but developers of CACG systems "generally perceive their programs as being able to stand alone with the assistance of workbooks and handbooks" (Pyle, 1984, p. 143). Is this true? Are some of all CACG systems complete in themselves?

Integrating Counsellor and Computer Roles

An increasing body of literature challenges the stand-alone premise and points to the need for both the counsellor and the computer in career guidance (Pyle, 1984; Harris-Bowlsbey, 1985). Pyle and Stripling (1976) found support for the counsellor's role as manager of the SIGI system which he or she would use as an "additional tool in student career development". Sampson and Stripling (1979) demonstrated the effectiveness of CACG combined with counsellor intervention. There were three groups in their study. One group was given structured counsellor intervention that employed an introduction and a follow-up to their interaction with

SIGI. The second group used SIGI with unstructured counsellor intervention, while the third group used SIGI with no counsellor intervention at all. The students in both intervention groups preferred working with a counsellor while using SIGI and, of the two approaches, they preferred the structured intervention. Sampson and Stripling concluded that "the structured approach offers an effective method of assisting students in obtaining maximum benefit from using a computer-assisted guidance system" (p. 236). Cassie, Ragsdale and Robinson (1979) found that students generally did not make full use of self-assessment data. Consequently they might have benefitted from a counsellor's assistance. Similarily, Ryan, Drummond and Shannon (1980) concluded that counsellors are needed to help clients use CACG systems in an optimum manner. Garis (1982) reported that both a group using DISCOVER and a group receiving individual career counselling experienced equivalent positive effects on career planning behavior but a group that used DISCOVER combined with individual counselling showed some indications of "stronger effects upon career planning progress than either of its separate components." McKee and Chiavaroli (1984) reported that the use of a CACG system "did not decrease the quantity of time counsellors spent with students on career education, but it did increase the quality of the counselling sessions" (p. 166). Harris-Bowlsbey (1983a) made a similar statement: "Many, or more, students come to see the counselor after use of the computer-based systems but the questions are at a different level of specificity." (p.13). Counsellor time may not decrease because clients are motivated to pursue more career planning activity after using a CACG system (Sampson, 1984). The increase in quality of the counselling sessions may be due to clients dealing with specific questions instead of general concerns (Harris-Bowlsbey, 1983a). There is some evidence, then, that counsellors hold an

important role and that it may be different from their traditional role.

Several problems may arise if attention is not given to integrating the counsellor with the computer in computer-assisted testing and assessment (Eberly & Cech, 1986). These problems are equally relevant to the closely related area of CACG. One major concern is that users often view computer output as authoritative. The machine becomes the "expert" (Gray, 1986). Clients with an external locus of control are more likely to perceive the computer in this manner (Childers, 1985). Counsellor input is required to ensure that information acquired from the system is relevant and that the client takes control of the decision-making process. Another problem is that the system may provide such an abundance of information that it increases the client's uncertainty and drives him or her farther from making a decision. Counsellors can alleviate this problem by clarifying for their clients what information is needed, how to get that information and how to use it in the decision-making process (Gelatt, 1984). Another concern raised by Eberly and Cech is that sometimes clients come for career counselling with an underlying need. Only personal counselling can assess and deal with these deeper needs. Finally, the possibility of alienation from the entire process exists for many clients if human involvement is lacking.

Given these dangers, it is apparent that the roles of the counsellor and the computer in CACG must be understood and principles for integrating the two established. Sampson (1983) presented "a generalized model for counsellor intervention" with computer applications of any type. The model consisted of six general guidelines that dealt with client readiness and goals, orientation to software, client-counsellor interaction and follow-up.

Harris-Bowlsbey (1984) made the observation that the role of the computer in

career guidance is related to the theoretical perspective held. Theories of career guidance fall into two categories, according to Harris-Bowlsbey: vocational choice or career development. Vocational choice theories generally prescribe step-by-step processes leading to a single occupational decision. A computer is well-suited to these processes. Consequently the entire guidance process, from the vocational choice perspective, could be provided by a computer system. Alternatively, career development theorists focus their attention on a process in which a series of choices are made over the entire lifespan. Career guidance, according to Harris-Bowlsbey (1984, p. 148), includes these critical goals: support positive self-concept formation, assist in understanding personal characteristics, assist with learning effective decision-making styles, assist with acquisition of vocational coping skills, and assist with developing an awareness and responsibility for one's career. Harris-Bowlsbey identified two ways of using the computer within the career development approach: as an information source used within a counsellor-delivered program or as a guide supporting the career development process. Although the latter use is more extensive in scope and forms a more appropriate fit with the career development process, both will fall short of meeting the critical goals. The range of human experience included in developmental career guidance will likely always be too broad and flexible for computers to deal with effectively (Sharf, 1985). Counsellor involvement is essential if the critical goals of career development are to be met.

A clear presentation of roles in CACG has been provided by Harris-Bowlsbey (1983b). First, in order to gain an understanding of the career planning process, the components of that process were identified. Harris-Bowlsbey found at least seven components:

1. Development of Readiness.
2. Acquisition of Relevant Self-Data.
3. Translation of Self-Data into Information.
4. Acquisition of Information About Identified Occupations.
5. Acquisition and Development of Decision-Making Skills.
6. Reality Testing of Favored Alternatives.
7. Implementation of Choice.

(Harris-Bowlsbey, 1983b, p. 64-66)

These components provide a thorough description of the career planning process and therefore have value as a standard by which to measure the extent of the process dealt with by CACG systems. In this study these seven components will be referred to as the Systematic Career Guidance Model.

Harris-Bowlsbey then developed a matrix of responsibilities which indicated the role played by computer-based information systems, computer-based guidance systems, counsellors and other sources in each of the seven components. Computer-based information systems had responsibility for fewer components than did computer-based guidance systems. Computer-based guidance and counsellors appeared to carry about the same amount of responsibility in the process but each addressed at least one component that the other did not. For example, counsellors were given primary responsibility for developing client readiness while computer-based guidance systems handled acquisition of occupational information. This again points to the need for for both the computer and counsellor working together in a complementary manner.

Johnson (1983) stated, "None of the major computer systems are meant to be 'stand alone' ". Some of the "major computer systems" she refers to are

DISCOVER-II, and SIGI, which are still among the most comprehensive and powerful CACG systems in use and therefore the most likely to be considered stand-alone systems. Johnson further referred to the computer in the counselling profession as a "new tool". Indeed, the names computer-*assisted* career guidance or computer-*assisted* career counselling imply that these systems are tools assisting the counsellor, not completely replacing him or her, in providing career guidance.

Research directed at integrating counsellors and CACG systems in counselling practice is limited (Pyle, 1985). One model proposed the use of student peer counselling with CHOICES as part of an overall career counselling program (France & McDowell, 1982). Pyle (1985) presented a brief but well detailed program which employed group counselling with CACG. Group counselling appears to be a good approach to use with CACG because it provides the human, interpersonal touch while servicing larger numbers than individual counselling is able to deal with.

Career Indecision

Career indecision is a useful concept in assessing an individual's state in the career planning process. Sepich (1987, p. 8) defined career indecision as "a multidimensional state which includes but is not limited to, being unsure of a college major or future career." In support of this definition, a study of college students found career decision to be a multidimensional phenomena (Rogers, 1980). In a review of the literature, Sepich found evidence that career indecision had several correlates: anxiety, sense of identity, and vocational maturity.

CHOICES

The computer-assisted career guidance system chosen for use in this study is the

Computerized Heuristic Occupational Information and Career Exploration System, commonly called CHOICES. CACG systems may be classified on a continuum which on one end emphasizes occupational information and on the other end emphasizes guidance and decision-making skills (Clyde, 1979). In a similar fashion, Harris-Bowlsbey (1983b) referred to "Computer-Based Information Systems" and "Computer-Based Guidance Systems". There is some disagreement on where CHOICES should be placed on this continuum (Pinder & Fitzgerald, 1984). Some place CHOICES near the middle (Clyde, 1979), whereas others classify it primarily as an information system (Jacobsen & Grabowski, 1982). The author's viewpoint is that CHOICES is basically a career information system supplemented with some of the features of a guidance system.

CHOICES was developed by the Canada Employment and Immigration Commission. The system underwent extensive field testing in schools prior to its release in 1978. Students were generally enthusiastic about CHOICES and reported that it was useful in career planning and helped them become more certain about career plans. Counsellors' comments showed a guarded optimism about CHOICES (Jarvis, 1978). Since CHOICES was released it has grown in popularity and is currently used across Canada, in several of the United States and in parts of Europe.

The modest amount of research done with CHOICES has, for the most part, continued to bring positive results. An article written two years after CHOICES was introduced to schools in British Columbia described the impact of the system on counselling and guidance province-wide (Sloan & Laird, 1982). In the article, the CHOICES system is shown to be a catalyst causing an increased public demand for career counselling, an improvement in the image of counsellors as well as a modification of their role, a restructuring of counselling departments and of career

education curriculums, and changes in counsellor training at the university level. CHOICES was preferred to the paper-and-pencil based Self-Directed Search by a group of 75 university students who used both treatments (Reardon, Bonnell & Huddleston, 1982). In a study of 221 students in six high schools, subjects were assigned to use either CHOICES or Career Factory, another CACG system (Perron, 1983). Both groups shared a significant increase in career maturity level over the treatment period of 11 weeks. Another study using a control group design with 136 subjects found that "the utilization of CHOICES as a treatment does increase the career decision-making commitment of university students" (Pinder & Fitzgerald, 1984, p. 127). The authors drew the conclusion that "computerized guidance systems such as CHOICES are viable counselling interventions that can assist in meeting the career development needs of college students". An apparently contradictory conclusion was reached by McDonald (1985) who stated that "CHOICES is not seen as a helpful resource in career planning among university students." (p. 234). Part of the discrepancy may be explained by the differing concepts measured and the instruments used. Pinder and Fitzgerald used a detailed test that measured career decision; McDonald assessed perceived helpfulness with a brief survey.

All of the above empirical studies appear to limit CHOICES by using the software in conjunction with the Guidebook as a stand-alone career planning treatment. When CHOICES is used in this dismembered fashion it is frequently the counsellor mediated parts that are omitted. None of the studies referred to above make mention of any post-interaction counselling as part of the treatment; instead, most posttests were administered immediately after computer interaction. There may well be a place for assessing the CHOICES software as a counselling *intervention* in this way, but

to use part of the system in a study and then generalize the results to the entire system as a career guidance *treatment* is clearly limited. McDonald (1985) did this by asking her subjects how helpful CHOICES was to them after completing one and one-half hours of computer interaction. She then concluded that CHOICES was not a helpful resource. The results that she obtained are to be expected because she tested her subjects at the point when they had just received several lists of uninterpreted occupational data. Without the counsellor mediation in the post-interaction step of CHOICES, the client is likely to be left with some confusion and dissatisfaction.

These studies do not employ CHOICES as a complete career planning process. However, according to the CHOICES Counsellor's Manual, the entire system contains three steps:

STEP ONE:	Counsellor prepares client. Client completes self-assessment in Guide.
STEP TWO	Pre-interaction counselling of client concerning his/her self-assessment. Client interacts with CHOICES. Short debriefing by counsellor.
STEP THREE	Post-interaction counselling.

The CHOICES computer program itself has two sections: SEARCH and INFORMATION. Each section contains two "routes" or ways to use the program. In the SEARCH section, the EXPLORE route allows users to search for occupations

compatible with their self-assessment profiles. The RELATED route allows users to search for occupations sharing specific characteristics with an occupation of interest to them. In the INFORMATION section, the SPECIFIC route provides information on occupations specified by the user while the COMPARE route presents information about two specified occupations in side-by-side format for comparative purposes.

This brief overview of the system demonstrates that CHOICES is a carefully designed combination of counsellor and computer mediated career guidance. Philip Jarvis, project leader of the group that developed CHOICES, highlighted the importance of counsellor involvement in the system:

> Counsellor mediation is considered important in effective client use of CHOICES. A counsellor should be available to assist clients in determining suitable input and exploration strategies, in analyzing and evaluating computer feedback, and in planning future courses of action (Jarvis, 1978, p.8).

When viewed in its entirety, CHOICES addresses all the components of Harris-Bowlsbey's Systematic Career Guidance Model (1983b), with the exception of the first - development of readiness. Step One of CHOICES sees the client acquiring and organizing relevant self-data through the use of the Guide. In Step Two, the self-data is validated by a counsellor and the client interacts with the computer to get a translation of his or her self-data into information (occupational titles) and information on these occupations. In Step Three, post-interaction counselling, the counsellor uses other activities to follow up on the information provided by the computer, eventually leading the client to decision and to action. This step covers the remaining three components of Harris-Bowlsby's model. Thus CHOICES may be considered a complete career planning system only when used in its complete form.

Questions Considered

In general, counsellor mediation is essential to the effective use of computer-assisted guidance systems, and specifically of CHOICES. In order to provide further for the assertion about CHOICES, this study will explore this primary question:

Question One: Does post-interaction counselling (Step Three) in CHOICES reduce career indecision after CHOICES interaction (Step Two)?

No studies to date have considered the longer-term effects of CHOICES. It is not known whether the short-term gains demonstrated in the studies stay with the clients over time. To investigate this, two secondary questions will be addressed:

Question Two: Is career decision stable after CHOICES interaction (Step Two) ?

Question Three: Is career decision stable after post-interaction counselling (Step Three) ?

CHAPTER THREE

METHOD

This experiment was a field study that employed two treatment groups and a control group. In this chapter, the subjects will be described and the manner of assigning them to the three groups will be presented. The procedure followed in conducting the study will be explained and then the treatments used will be detailed. The instruments will be described and the rationale for their selection discussed at the close of the chapter.

Subjects

The subjects for the study came from the entire 1987/88 grade 11 class at Old Scona Academic High School in Edmonton, Alberta (80 students in all). As the name suggests, this school focuses on academic studies. The student population tends to have high motivation for academic pursuits and few reported behavioral difficulties .

The assignment of a student to a treatment group as opposed to the control group was based on the student's own decision. There was an ethical obligation to include any students in the treatment groups who wished to be in them because the study was to serve as the primary source of career counselling for those students that year. Those who wanted to be active participants in the study and had not interacted with CHOICES for the last 20 months were placed in the treatment groups. Those who did not wish to be in the study were assigned to the control group. This lack of random assignment introduced a possible confounding factor because the treatment groups may have been more motivated towards career exploration than was the control group. The total number volunteering for the treatment groups was 57. The remaining 23 students were placed in a control group called Group C. One of the

treatment group subjects did not attend any of the meetings and was consequently dropped from the study, leaving 56 participants.

The 56 volunteers were assigned to two treatment groups, Groups A and B. Selection was based on the time when students had spare or free periods in their timetables. This was a necessary condition because both staff and students desired a minimal interruption of their classes. This introduced another possible confounding factor: in some cases students who had a certain period free tended to be in the same type of courses and have the same broad interests. In one case, nine students in Group B who had the same period free were all participants in the International Baccalaureate Program (a special program for high achievers). There was adequate flexibility within the timetabling constraint to allow certain other factors to be equated between the two groups. These factors included sex, previous experience with CHOICES in junior high school (two or three in each group), and no spare periods, meaning they had to miss classes to attend treatment meetings (two students in each group). Twenty eight students were assigned to each group. Three students were dropped from each group because of poor attendance or other procedural irregularities during the course of the study.

The final numbers of subjects in each of the groups is shown in Table 1. A breakdown by sex is included.

TABLE 1: Subjects by Group and Sex

Group	Males	Females	Total
A	12	13	25
B	11	14	25
C	12	11	23

Procedure

All grade eleven students were informed about the CHOICES Career Search program and invited to participate. Those who responded with interest were given commitment forms explaining the time involved and asked to describe any prior usage of CHOICES. Those who returned the forms formed the two treatment groups which initially were treated as one combined group. Those who did not volunteer for the program were assigned to the control group.

A pretest was administered to the combined treatment group, and then the treatment commenced. The treatment can be thought of in two parts. The combined group underwent the first part, pre-interaction counselling and CHOICES interaction; and then a second test was administered. At this point Groups A and B were differentiated. Group A continued on with the second part of the treatment, post-interaction counselling, after a two week break in the program to accommodate school examinations. The students in Group B were asked to refrain from talking to those in Group A about their activities in the program. A third test was administered to both groups after Group A had completed the post-interactional counselling treatment. It was believed that comparing the mean scores of the two groups at this point would give an indication of whether counselling after interacting with CHOICES had a significant effect. Thus, Group B was used as a control group for Group A in order to address the question of effect of post-interactional counselling. This arrangement also allowed Question 2 (stability of decision after choices interaction) to be addressed by comparing Group B's scores for test administrations two and three.

After the third test administration, it was Group B's turn to have post-interactional counselling while Group A waited. Then test number four was administered. There

were no further treatments for either group during the next four weeks. Then, the fifth and final test administration was performed. The fourth and fifth test administrations compared with the third allow testing for stability of career decisions after the complete CHOICES treatment. This addresses the third research question of this study.

Group C, the control group, was given two tests, coinciding with the first and last adminstrations to the treatment groups. This gave an indication of the stability of career decision with no treatment over the entire experimental period.

Table 2 summarizes the experimental design presented in the discussion above. (The elapsed time between Test 2 and Test 3 is seven weeks rather than four because of the two week time out for school examinations immediately following Test 2 and a one week school vacation two weeks before Test 3).

TABLE 2: Experimental Program: Interventions and Tests

Group	Time 1	Time 2	Time 3	Time 4	Time 5
A	X- Pre-int'n----> Counselling & CHOICES Int'n	X- Post-int'n--> Counselling	X ---------->	X ---------->	X
B	X- Pre-int'n----> Counselling & CHOICES Int'n	X ---------->	X- Post-int'n--> Counselling	X ---------->	X
C	X ---------->				X
Time	3 weeks	7 weeks	4 weeks	4 weeks	

Note: X indicates the administration of tests.

The treatment program developed for the experiment is a decision-making process composed of stages through which the subjects progress. It is very similar to the "Systematic Model" of career decision-making articulated by Yost and Corbishly (1987). This model is a composite of career counselling models and processes that have developed over time and are in common use today (Hazler and Roberts, 1984). The Systematic Model draws the majority of its theoretical basis from behavioral career counselling, one of its emphases being the development of decision-making skills (Krumboltz, 1976).

It was stated above that the treatment program could be divided into two parts. Each part consisted of four sessions, making a total of eight sessions in the treatment program. The program was designed to be suitable for use in a normal school counselling situation. The content of the sessions is outlined below. See Appendix C for complete lesson plans for the sessions. All sessions were supervised by the researcher with occasional assistance from school staff.

Session 1 - *Orientation*. Introduction to career planning. Introduction to CHOICES. Walk through the CHOICES Guide.

Session 2 - *Pre-Interaction Counselling*. Validation of key self-assessment responses through awareness exercises. Prioritizing topics in the Guide. Preparing to interact with CHOICES.

Session 3 - *Computer Interaction 1*. Orientation to interacting with CHOICES. Use of SEARCH route.

Session 4 - *Computer Interaction 2*. Use of SEARCH and SPECIFIC routes.

Session 5 - *Post-Interaction 1*. Review CHOICES lists. Select occupations for consideration. Use of career reference material to narrow down lists.

Session 6 - *Post-Interaction 2*. Introduction to information interviews.

Session 7 - *Post-Interaction 3*. Check on interview progress. Validation of a potential occupation through use of exercises.

Session 8 - *Post-Interaction 4*. Discussion of career misconceptions. Decision-making and developing an action plan.

A debriefing session for both treatment groups was held four weeks after the second group had completed Session 8.

Instruments

The Career Decision Scale (CDS) (Osipow, Carney, Winer, Yanico & Koschier, 1976) was chosen as the primary instrument to measure changes in students' career indecision. Sepich (1987) concluded that two instruments, the CDS and the Vocational Decision Making Difficulty Scale (Holland & Holland, 1977), "appear to hold the most promise in career indecision assessment devices" (p. 15). Preference was given to the CDS as more is known about its properties because of its frequent use in studies.

The CDS is composed of 18 items. Responses to the items are made on a four point Likert Scale; 4 means "exactly like me", and 1 means "not at all like me". The items form two subscales. The first two items comprise the Certainty Scale, a measure of how certain a student is of a chosen college major and career; the higher the score, the more certain the student is of the choice. The remaining 16 items make up the Indecision Scale. As the name suggests, this scale measures career indecision. A higher score indicates more indecision in career planning than does a

lower score. The Certainty and Indecision Scales are inversely correlated (Osipow, 1987). The majority of the studies employing the CDS, including this one, choose to use only the Indecision Scale because of its reliability and the usefulness of the career indecision construct. There is a 19th item on the CDS that contributes to neither scale; it allows a student to write in a response different from the previous 18 items.

The CDS was selected because it met the five criteria required of an effective instrument in this experiment:

1. Suitable for use with a high school population.
2. Quick and easy to administer.
3. Reliable over time.
4. Sensitive to the effects of interventions.
5. Valid measure of the career indecision construct.

In regard to the first two criteria, "the scale is intended as a rapid and reliable instrument for surveying high school and college students..." (Osipow, 1987, p.4). The students in this study had no difficulty understanding the instructions or the content of the items. Most were able to finish the scale within ten minutes.

Two studies have dealt with the test-retest reliablity of the CDS. Osipow, Carney and Barak (1976) reported a wide range of correlations for the individual items but the two correlations for the entire Indecision Scale were high, at .90 and .82. The correlations were calculated from measures taken over a two week interval. The second study considered relabilities over a six week period and reported an Indecision Scale test-retest correlation of .70 (Slaney, Palko-Nonemaker, and Alexander, 1981).

The CDS was found to be responsive to vocational guidance interventions in the founding study by Osipow, Carney and Barak (1976). Since that time, a substantial number of studies have supported this finding, as Osipow (1987) has reported in the manual. More studies of this nature have come out since the last edition of the manual (Cooper, 1986; Davis and Horne, 1986; Schroer and Dorn, 1986; Dorn, 1987) attesting to the CDS as an instrument sensitive to changes in career indecision brought about by a variety of treatments. One reviewer said, "A number of studies establish that indecision scores decrease following career counselling interventions, and that while indecision scores in general decrease over time, they decrease more for treated than for untreated groups" (Herman, 1985, p. 271).

The responsiveness of the CDS to career counselling interventions supports its validity as a measure of career indecision. Osipow (1987) added to this support by summarizing research that found appropriate correlations between the CDS and other instruments and variables. Rogers (1980) and Rogers & Westbrook (1983), for example, found that career indecision as measured by the CDS did not correlate highly with mental abilities but did correlate significantly with Holland and Holland's (1977) measure of vocational indecision. Hartman & Hartman (1982) investigated the concurrent validity of the CDS. An adapted version of the scale was administered to 206 high school seniors. The students were then asked to write a statement describing their career decision. 160 statements were received. Pearson correlations of .57 and .59 between the indecision scores and the ratings of the written statements were considered sufficient to establish the concurrent validity of the CDS.

The construct validity of the CDS is derived from the manner in which the scale was developed. The authors of the CDS believed that "a finite number of relatively discrete problems prevent people from reaching closure for educational and vocational

decisions" (Osipow, 1987, p. 4). They identified 16 antecedents of career indecision from their experience with clients. Each item in the Indecision Scale reflects one of the 16 antecedents.

The factor structure of the Indecision Scale was initially studied by Osipow, Carney and Barak (1976). Four factors were found. Subsequent studies replicated these four factors (Slaney, Palko-Nonemaker & Alexander, 1981; Rogers & Westbrook, 1983), although no one study has replicated all four factors together. Rogers and Westbrook (1983) concluded that the identification of two factors replicated from the Osipow, Carney and Barak (1976) study using different subjects and analytical methods demonstrated "some degree of convergent validity for the CDS" (p. 84).

The CDS has been the subject of several reviews (Allis, 1984; Harmon, 1985; Herman, 1985; and Slaney, 1985). All of these reviews present the CDS in a positive manner. One caution sounded by Slaney (1985) is concerning the possibility that "simply reading the scale items may have an effect on the subject" (p. 139), a potential problem with any instrument.

Another instrument was developed by this researcher to collect data supplementary to the CDS (See Appendix A). It consists of five completion items for identifying occupations of interest and a four point Likert scale for respondents to identify the certainty of their interest in each occupation. An additional item asks for an indication of interest in career planning. Six other items addressing students' attitudes toward the process were added to this instrument for test administrations two, three, and four when the students were actively involved in the treatment process.

CHAPTER FOUR

RESULTS

A conceptual framework will be given at the outset to assist in understanding the data. Descriptive statistics (means, standard deviations) are presented first, followed by a section dealing with the testing of the hypotheses. The final section of the chapter presents some post-hoc analyses that will prove useful for the discussion in the following chapter.

Representation of Data

Table 3 presents a conceptualization of the results in this repeated measures design in matrix form.

TABLE 3: Repeated Measures Data Matrix

Group	Time 1	Time 2	Time 3	Time 4	Time 5
A	Ma_1	Ma_2	Ma_3	Ma_4	Ma_5
B	Mb_1	Mb_2	Mb_3	Mb_4	Mb_5
C	Mc_1	--	--	--	Mc_5

From the matrix it can be seen that the two treatment groups, A and B, were measured five times. Group C has only two measures, at Times 1 and 5, because the subjects in Group C were tested only at these times.

Descriptive Statistics

The means and standard deviations of Indecision Scale scores from the CDS are presented in Table 4. This table is organized in the same manner as the matrix in Table 3. The standard deviations are shown in parentheses below their respective means.

TABLE 4: Indecision Score Means and Standard Deviations

Group	Time 1	Time 2	Time 3	Time 4	Time 5
A	35.12 (5.24)	32.20 (6.20)	29.88 (6.40)	30.60 (7.00)	30.20 (7.51)
B	33.48 (5.13)	32.76 (5.79)	30.80 (5.71)	27.08 (6.80)	28.08 (6.17)
C	32.87 (8.78)	--	--	--	31.61 (8.47)

Note: Standard Deviations are in parentheses

The box plots in Figure 1 provide a graphic representation of the distribution of scores for each treatment group at each time. The end points represent the extreme scores in each sample, with the span in between divided into quartiles. The control group scores are presented in a similar manner in Figure 2.

FIGURE 1: Indecision Scores - Treatment Groups

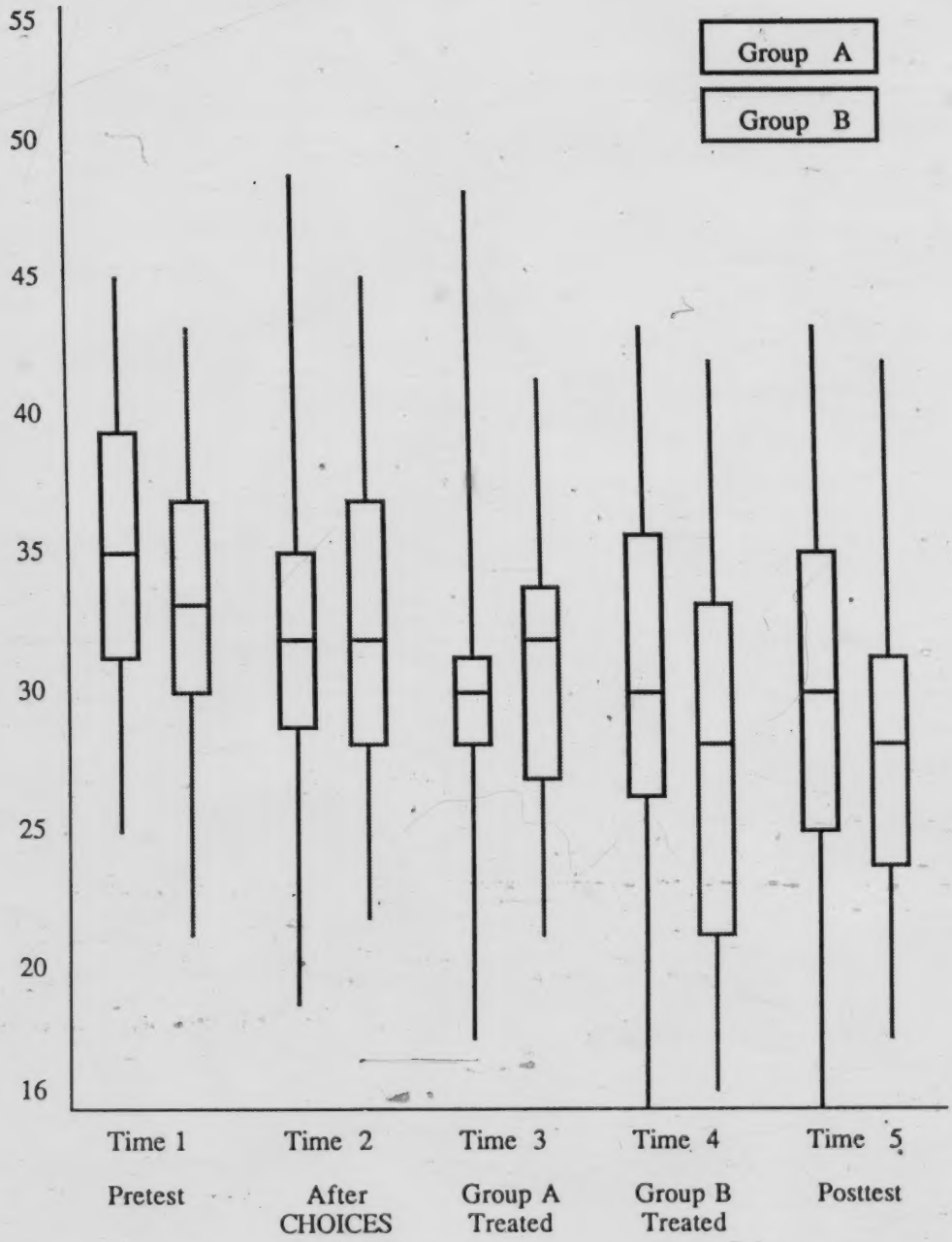
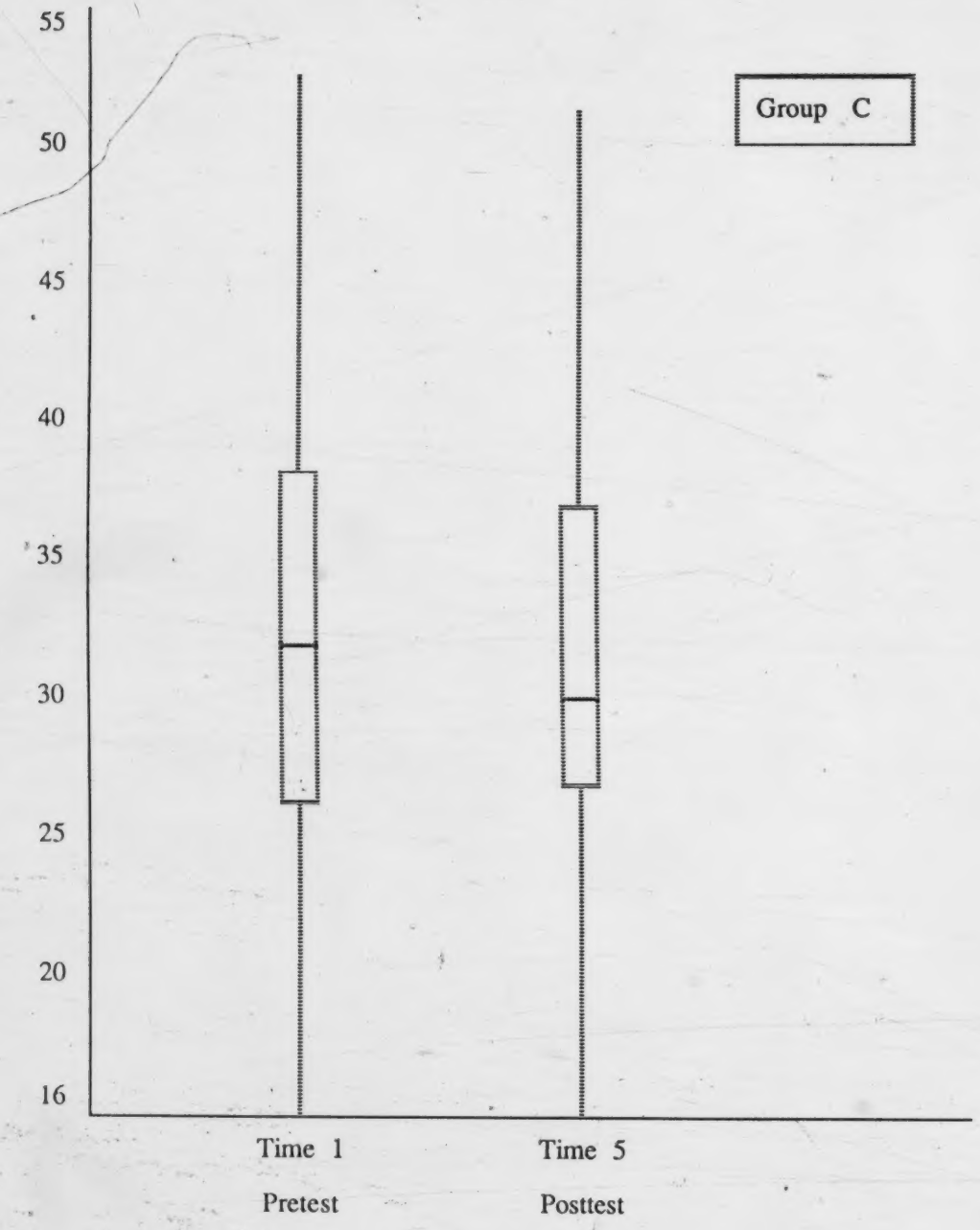


FIGURE 2: Indecision Scores - Control Group



Treatment Effects

A 2 X 5 analysis of variance was performed to examine effects of the treatments on Groups A and B. The Greenhouse-Geiser Adjustment (Winer, 1971, p. 523) was applied because of the repeated measures design. The results are presented in Table 5.

TABLE 5: Tabulation of 2 X 5 ANOVA

Source of Variation	df	SS	F	P
Group	1	84.10	0.77	0.386
Time	4	1081.96	12.77*	<0.001
Group X Time	4	175.08	2.07	0.109
Subjects (Group)	48	5268.40	5.18*	<0.001
Time X Subjects (Group)	192	4067.36		

* F-ratio significant at the alpha = .05 level.

These results indicate significant differences in means over time and also between the mean scores of individual subjects within groups. No significant difference was found between Groups A and B, nor was there found to be a significant interaction between group and time.

Hypothesis Testing

Recall the three questions posed in this study:

1. Does post-interaction counselling (Step Three) in CHOICES reduce career indecision after CHOICES interaction (Step Two)?

2. Is career decision stable after CHOICES interaction (Step Two)?

3. Is career decision stable after post-interaction counselling (Step Three)?

Hypotheses were formed that correspond to each question using the terminology in Table 3:

1. Ho: $(Ma_1 - Ma_3) - (Mb_1 - Mb_3) = 0$

2. Ho: $Mb_2 - Mb_3 = 0$

3a. Ho: $Ma_3 - Ma_5 = 0$

3b. Ho: $Mb_4 - Mb_5 = 0$

Note that question 3 can be addressed in two ways because of the design of the experiment. Stability over eight weeks is considered with Group A, and over four weeks with Group B.

The hypotheses were tested using planned orthogonal comparisons (Winer, 1971; Lee, 1975). It is worthy of note that the traditionally held principle that multiple comparison procedures should only be used after a significant F test has been challenged in the literature. Wilcox (1987) discussed this problem and concluded that "in terms of controlling the Type I error probability, most multiple comparison procedures should be used regardless of whether the F test is significant" (p. 36). A comparison was developed for each hypothesis and an F ratio calculated. Each comparison had one degree of freedom in the numerator and 192 degrees of freedom in the denominator. The results are presented in Table 6.

TABLE 6: Planned Comparisons Addressing Hypotheses

Hypothesis No.	Comparison	df	F
1.	$(Ma_1 - Ma_3) - (Mb_1 - Mb_3)$	1,192	1.930
2.	$Mb_2 - Mb_3$	1,192	2.268
3a.	$Ma_3 - Ma_5$	1,192	0.060
3b.	$Mb_4 - Mb_5$	1,192	0.590

None of the comparisons was statistically significant at the 0.05 level so all three null hypotheses were accepted. This means that no significant difference was found between Group A, after they had had CHOICES interaction and post-interaction counselling, and Group B which had had only the computer-interaction alone. The results also indicate that the indecision scores were stable after Stage 2 of CHOICES over a four week period and after Stage 3 over both four and eight week periods.

Treatment Groups versus Control Group

When conclusions are drawn about the effects of a treatment in an experiment, an important underlying assumption is that there is no significant effect produced over the same time period in the absence of the treatment. The presence of the control group allows the testing of this assumption by comparing the control group's means at Time 1 and Time 5. This comparison is represented by the null hypothesis:

4. Ho: $Mc_1 - Mc_5 = 0$

Further, for an effective overall treatment program, significant differences are

expected between Time 1 and Time 5 for both treatment groups. Thus, two more hypotheses will be tested:

5. Ho: $Ma_1 - Ma_5 = 0$

6. Ho: $Mb_1 - Mb_5 = 0$

A 3 X 2 analysis of variance was run including the scores of all three groups for Times 1 and 5. Referring to the matrix in Table 3, this included the following elements:

TABLE 7: Data Matrix for 3 X 2 ANOVA

Group	Time 1	Time 5
A	Ma_1	Ma_5
B	Mb_1	Mb_5
C	Mc_1	Mc_5

TABLE 8: Tabulation of 3 X 2 ANOVA.

Source of Variation	df	SS	F	P
Group	2	96.86	0.68	0.510
Time	1	543.08	20.56*	<0.001
Group X Time	2	121.20	2.29	0.108
Subjects (Group)	70	4984.00	2.70*	<0.001
Time X Subjects (Group)	70	1849.40		

* F-ratio significant at the alpha = .05 level.

The results of the ANOVA are presented in Table 8. Significant effects are indicated between times in general but the interaction between group and time is not signficant. The F-ratio for each comparison has one degree of freedom for the numerator and 70 degrees of freedom for the denominator.

The F-ratio obtained for the first comparison (Hypothesis Four), regarding the control group, was 0.69. This is not significant at the 0.05 level so the null hypothesis is accepted. This indicates that the control group subjects did not change significantly over the experimental period. This is as expected.

The F-ratios obtained for the second and third comparisons (Hypotheses Five and Six), representing groups A and B respectively, were 11.45 and 13.79. Both ratios are significant at the .05 level so both null hypotheses are rejected. This indicates a significant difference in scores over the experimental period for both treatment groups. In other words, the treatment program as a whole had some effect.

Post-Hoc Analysis

The effect of post-interaction counselling was found to be statistically insignificant (Hypothesis One), but the effect of the overall program was found to be significant (Hypotheses Five and Six). In light of these findings, it is of interest to know if CHOICES interaction with only pre-interaction counselling was significant. Two hypotheses were formulated to test this question:

7. Ho: $Ma_1 - Ma_2 = 0$

8. Ho: $Mb_1 - Mb_2 = 0$

Sheffé a posteriori comparison procedures (Winer, 1971) were used. The degrees of freedom were four in the numerator and one hundred ninety two in the denominator. Neither of the respective F ratios of 5.033 and 0.950 was significant at the .05 level. Both null Hypotheses Seven and Eight are accepted, suggesting that the CHOICES interaction with only pre-interaction counselling was not significant in affecting career indecision.

TABLE 9: Frequencies of Subjects with Increased, Decreased and Stable Indecision Scores.

	Time 2	Time 3	Time 4	Time 5
Group A				
Increased	08	02	11	04
Stable	05	16	07	14
Decreased	12	07	07	07
Group B				
Increased	06	05	04	09
Stable	12	09	06	13
Decreased	07	11	15	03

Note: The criterion for an increased or decreased score is a difference of at least 3 from the subject's previous score.

As the data analysis proceeded, the need for an understanding of the behavior of individual subjects was recognized. Table 9 provides a summary of numbers of subjects whose indecision score increased, decreased, or remained stable from the previous measurement. The numbers show much movement from one test time to the

next. Furthermore, there were subjects both increasing and decreasing in indecision at all points in the experiment, whether they had just had interaction with CHOICES, post-interaction counselling or no treatment at all.

Differences between individuals' Time 1 and Time 5 scores in the control group were determined in the same way. Seven control group subjects had an increase of three points of more, seven had stable scores and nine showed a decrease in indecision scores.

An estimate of how much of the post-interaction program had been completed would be useful, given the unexpected results of Hypothesis One. The Program Evaluation forms were consulted and points were given for each major activity reported as having been completed. Using 10 as a complete score, percentages were calculated and the mean taken in each group. Groups A and B completed approximately the same amount of activities in the post-interaction treatment program with group means of 75.4% and 78.8% respectively.

TABLE 10: Career Planning Interest

Group	Time 1	Time 2	Time 3	Time 4	Time 5
A	3.4	3.7	3.6	3.3	3.0
B	3.5	3.6	3.5	3.5	3.3
C	3.1	--	--	--	3.1

Table 10 shows the mean interest in career planning reported by subjects in group A and B. Data for this table were taken from a question on the supplementary

instrument which asked for the perceived level of interest in career planning at that time. Low was coded as "1" and high was coded as "4". For both groups, career planning interest remained high through the treatment period with no significant decreases until after the post-interactional treatments.

TABLE 11: Frequencies of Changes in Indecision Scores for the Most Undecided and Least Undecided Subjects.

		Most Undecided (Initial score in top quartile)	Least Undecided (Initial score in bottom quartile)
After Choices	Increased	3	8
	Stable	1	6
	Reduced	8	0
After Post-Interaction	Increased	2	0
	Stable	4	8
	Reduced	6	6
After Entire Program	Increased	0	3
	Stable	3	9
	Reduced	9	2

Note: The criterion for an increase or decrease in score was a minumum difference of 3 from the previous indecision score.

The subjects with the highest and lowest initial indecision scores were identified and the changes in their scores at different points in the program were examined. This information is summarized in Table 11. The most undecided subjects tend to benefit at different stages of the program more than do the most decided subjects.

The responses at Time 3 to Question 37 on the supplementary instrument were compiled to get an indication of whether the results at this critical point in the program

may have been influenced by factors unrelated to the program. In response to the statement, "Something has happened in the last four weeks unrelated to this program that affects my career planning", three (3) subjects in group A and five (5) subjects in group B agreed or strongly agreed. This means that at least eight out of 50 (16%) of the subjects had something happen to them that significantly changed the course of their career planning but was in no way tied to the treatment program. Responses to questions 35 and 36 on the supplementary instrument were examined for Group B at Time 3 to get an indication of their behavior between Time 2 and Time 3. Ten said that the program had helped them, even though this had been a period of waiting for this group.

CHAPTER FIVE

DISCUSSION

The majority of this chapter is given to the discussion and interpretation of the results. Attention is then directed to recommendations for further study and to implications for career counselling and research.

Limitations of the Study

Before discussing the results of this study, its main limitations will be noted. Most of these limitations are discussed later in this chapter.

The population sampled was from an highly academic school. The students at this school may not be representative of typical high school students in characteristics relevant to this study, such as motivation and learning behaviors.

The subjects were not randomly assigned to the treatment groups because of timetable restrictions. This may have caused the two groups to differ in characteristics critical to the study.

Measurement was limited to one dimension, career indecision. There are numerous other dimensions of career maturity that could have been examined had time permitted.

Time restrictions were placed on the experimental period for the purpose of control. This may have limited the effectiveness of the program. Normally students would have more time to perform the activities.

A wide variety of responses was identified between subjects within groups and in subjects over the five measurements. This large variability limits the conclusions that may be drawn from the results.

Finally, the findings of this study cannot be readily applied to CACG systems in

general. One CACG system was used in the study, CHOICES, and as all systems are unique, the results and conclusions pertain only to this one system.

Stability of Effects over Time

Hypotheses Two and Three were accepted, indicating support for the notion that career decision is stable after interaction with CHOICES and also after post-interaction counselling (Questions Two and Three). Caution should be exercised before making this conclusion, however. The means presented in Table 4 appear to support the stability hypotheses but this may be deceptive. If the standard deviations in Table 4 and the box plots in Figure 1 are considered, a different picture emerges - one of growing variation within each treatment group, especially for Group B. This variation is further illustrated in Table 9; many subjects are seen to be increasing or decreasing their indecision scores. What apparently is happening is that there is much change among individuals in each group from one measurement to the next but when the mean of the scores in a group is taken, little change is evident. With this in mind, it is premature to conclude that decision stabilizes after either CHOICES interaction or post-interaction counselling; more studies are needed.

Post-Interaction Counselling

Hypothesis One addressed the major question of this study: Does post-interaction counselling in CHOICES reduce career indecision after CHOICES interaction? The null hypothesis was accepted, indicating that post-interaction counselling does not significantly reduce indecision. This runs counter to the Systematic Career Guidance Model (Harris-Bowlsbey, 1983b) that maintains there are several steps in the career development process subsequent to the point at which CHOICES interaction ends. It

also contradicts the requirements of the CHOICES manual itself: that post-interaction counselling needs to be provided as the last step in a three step process.

One promising explanation for this contradiction was that Groups A and B differed in some characteristic related to the process of the program. In particular, amount of work completed and interest in career planning were considered likely sources of variation. This did not appear to be the case; the mean interest scores for Groups A and B at each of the measurement times were very close (See Table 10) and the two treatment groups had completed approximately the same amounts of assignments in the post-interactional program. The results of the ANOVA (See Table 5) do not indicate a significant difference in indecision scores between the groups.

With no apparent differences between the treatment groups, attention was directed to the nature of the post-interaction treatment program. Perhaps this particular program was simply not effective. This is not likely. Program evaluation responses indicated that many of the students enjoyed the program and found it valuable in their career planning (See Appendix D). They mentioned specific activities from the post-interactional program as being especially helpful. Furthermore, although post-interaction counselling failed to give Group A a significant difference in scores over Group B (which had had no post-interaction counselling at that point), it should be noted that CHOICES interaction with only pre-interaction counselling failed to bring about significantly reduced indecision either. But the complete treatment program, with pre-interaction counselling, CHOICES interaction and post-interaction counselling, when viewed as a whole did have a significant effect on reducing indecision scores. This strongly suggests precisely what this study set out to investigate: the contribution of further treatment after computer interaction to the entire career planning process. The career planning program cannot depend on

CHOICES interaction alone, nor on post-interaction counselling alone; it must integrate these components into a complete program for maximum effect.

Viewing the treatment program as a whole rather than as a series of components also changes how a subject's movement through the program should be viewed. Rather than viewing an individual sequentially completing a series of steps, he or she is seen as moving through a more less continuous process of career development with the assistance of the activities in the program. If this view is correct, it is incorrect to consider the measurement taken at the end of a program component as a measure of that component's effectiveness; more accurately, it is a measurement of that subject's state at that particular moment in the process. The individual is dynamic, with many factors influencing his or her state of career decision. That state could change significantly in a short period of time regardless of the treatment administered. So the five measurements taken in this experiment may merely be snapshots of the states of career decision over the process of treament rather than valid measures of effectiveness of a given component of the program. This provides an explanation for the large variety of changes in scores over each measurement period independent of the stage of treatment that was being administered (See Table 9).

Another explanation for the lack of significance regarding this hypothesis is related to the concept just presented. There are extensive individual differences coming into play in this experiment. With a relatively small experimental group, it was possible to closely examine the data for each subject. Few clear patterns or trends were discovered. For example, no relationship was observed between those treatment group subjects who responded as expected (with reduced indecision scores after the post-interaction counselling) and their state at the beginning of the program (as undecided, decided, or in between). Similarly, no relationship was observed

between the change in indecision scores after post-interaction counselling in Group A and whether confusion was indicated. One of the few patterns discovered was that those who were the most undecided when the program started tended to benefit more from the program in terms of reduced indecision than those who were the most decided. The scores of the former group tended to diminish while those of the latter group remained about the same (See Table 11). This is not surprising when it is considered that those most likely to benefit from a decision making program are the least decided ones.

For the most part, the responses of the subjects did not follow any trends. In fact, many subjects exhibited response patterns that were unique. Each subject's scores were plotted in such a way that indicated whether each score was increased by at least three, decreased by at least three, or stable from one test time to the next. The resulting patterns were compared. Thirty unique patterns were found out of the total of fifty. Putting this observation together with the significant effect of the complete program, it can be said that the majority of the students benefited over the whole process but exhibited much variation during the process.

The highly idiosyncratic nature of the career development process from individual to individual is further affirmed by other results. Table 9 shows that some subjects were increasing and some were decreasing in scores at any measurement time in the experiment regardless of the stage of the process. This was true even when the stage involved no formal activities at all. Finally, strong statistical support is shown by the significant F ratio for subjects within groups (See Table 5). This means that a significant amount of variation was due to differences between subjects within the same group. Stated simply, the subjects within each group responded in significantly different ways from one another. That the career planning process is found to be

idiosyncratic is not surprising. The students came into the program with differing degrees of readiness, not only for career planning in general but also for each of the components of the program. Some responded well to the computer interaction while others were either unfamiliar with using a computer or did not like using one. Similarly, some thrived on the group approach used in the post-interaction component while others would have preferred working individually. Some even developed while they had no structured activities. (See Group B, Time 3: Table 4 and Table 9).

Further variation between individuals is introduced by situations that are relevant to the subjects' career development but unrelated to the treatment program. Meeting someone who introduces the subject to an occupation he or she was not aware of is one example of such a situation. The death of an immediate family member could be another. In this experiment eight of the fifty treatment subjects indicated that some such event had occurred in the four weeks prior to the Time 3 measurement being taken. With at least 16% of the population being externally influenced, the results may have been affected.

Another possible reason for the failure of the results for Hypothesis One reaching significance relates to the previously mentioned concept of career planning being a continuous process. If the concept is true, it would be expected that once a person has started career planning, he or she would seek to continue the process until satisfaction was felt. This study assumed that Group B, after having interacted with CHOICES, would suspend career planning for a month. This is not a realistic assumption, especially for high achievers who are demonstrating a high level of interest in career planning at the time (See Table 10). Rather, one would expect the subjects to continue the career planning process in informal ways such as thinking, reading, and even talking to friends who were proceeding further in the program as

members of Group A. The results suggest that this is what happened. Close to half (11) the subjects in Group B registered decreased indecision scores during this period of time. Even more telling, ten subjects claimed that the program had helped them decide on a career in the last four weeks even though they had participated in no structured activities during that time!

It could be argued that if Group A experienced reduced indecision after the post-interaction counselling program but Group B experienced a similar reduction during the same period of time without any program, perhaps the post-interactional program was unnecessary. This is not likely the case. Appealing again to the Systematic Career Guidance Model (Harris-Bowlsbey, 1983b), certain research and decision-making steps need to follow CHOICES interaction. Further support is given by the student's program evaluation comments (See Appendix D). Many referred to specific aspects of the post-interaction program that they valued. It is also important to realize that the behavior of the subjects in Group B may not be typical of most students. As students of an academically focused high school, they are high achievers. They generally are more highly motivated and have above average levels of intellectual ability. Research has shown that students with high general ability learn well in instructional situations lacking structure and completeness (Pintrich, Cross, Kozma, & McKeachie, 1986) and that students with less ability require more traditional forms of counselling than do students with higher ability (Melhus, Hershenson & Vermillion, 1973). Perron (1983) found that high school students in academic programs engaged in more career exploration behavior than did those in general programs after interacting with CHOICES. Therefore, although many of these high achieving students made gains without post-interactional counselling, a group of students with a more average range of ability would be expected to have

more of a need for this type of guidance.

The post-interaction counselling time frame may have been too brief to give rise to significant results. The four week period was limited considering the tasks included in the post-interaction part of the program and considering the corresponding steps in the Systematic Career Guidance Model. "Acquisition and development of decision-making skills", for example, is a step that requires development in maturity and cognitive processing. This could take months, not weeks, to accomplish. Furthermore, many students had difficulty completing their occupational research activities, particularly the interviewing, in the time given.

The Indecision Scale score may not be an appropriate means of measuring the effectiveness of a career program component. If this is so, the tested hypothesis may have little relevance to the question of whether the post-interaction counselling step of CHOICES is needed. It has been discussed above that the Indecision scores are volatile, idiosyncratic, and may be more a measurement of state of mind in the career planning process at a given moment than a measurement of program effectiveness. Another point to consider about the Indecision score is that in some cases an increase in score could mean that the program has had a beneficial effect. A diminishing Indecision score is generally considered favorably. But consider the individual who starts a career planning program firmly decided on a career path on the basis of sketchy information or even misconceptions. In this case, the individual may complete part of a career planning program and when measured, register an increase in indecision. If this is because the program has caused him to question those premature career directions, then the higher score supports, rather than denies, the effectiveness of that program.

This is not a rare occurence. It was common to see students in this study grow in

confidence on a certain career direction, then at some point become markedly more uncertain or confused when they acquired new information. This increased indecision motivated them to work towards a greater level of certainty; thus, the indecision was a constructive element of the process - an intermediate state that usually brought about a more solid decision in the end. The Indecision score alone is insufficient to assess the effectiveness of the program over a short span of time. The supplementary instrument was intended to complement the CDS but an instrument with proven validity and reliability is needed.

One more reason for viewing with caution the results of testing Hypothesis One is that the variance in both treatment groups grew over the experimental period. By Time 3, the standard deviations had increased from Time 1, especially for Group A. (See Table 4 and Figure 1). This phenomenon requires investigation. One explanation is that some subjects remained stable while others changed as the program proceeded. Some students did remain stable throughout the experimental period but they were a minority. Nine such patterns were observed over both treatment groups. As noted earlier, the vast majority of subjects exhibited unique response patterns throughout the treatment. Another possibility is that the students became more careless in completing the instruments with each assessment. There is some indication that this was occurring. Some students expressed impatience with the testing ("Do we have to do that again?"), especially at Time 3 and Time 4. Spot checks of individual subject's data revealed a few cases where scores and responses to questions were contradictory. On the other hand, most students appeared to apply themselves to completing the assessments and had response data that appeared consistent. Further, interest in the process remained reasonably high throughout the experimental period (See Table 10). So it is difficult to say how much the results

were affected by careless completion of tests. One other reason for the increasing variance could be that the CDS scales become less reliable for repeated measures designs. Further study of the CDS in repeated measures designs is required to investigate this possibility.

It is interesting to note that the standard deviations of the control group (8.78 and 8.47) were similar to the standard deviation (8.00) reported for the Indecision Scale by Osipow (1987). The standard deviations for the treatment groups started noticeably smaller (5.24 and 5.13) and then grew over time, approaching that of the control group by the end of the experiment. Perhaps the students in the treatment groups, being volunteers feeling a need for career guidance, had more similarities between them than did those in the control group who refused to take part in the program for one reason or another. Once in the treatment program, the subjects responded differently and thus the scores diverged.

Recommendations for Further Research

Demonstrating the necessity of post-interaction counselling with CHOICES or any other CACG system remains an important project. This study did not decisively demonstrate that need but does provide directions for future research which could give stronger support.

Selecting subjects from a population of high mental ability may have affected the significance of the results. As discussed above, it was difficult to control this study because the subjects were highly motivated and appeared to continue to develop even in the absence of any structured treatments. It would be interesting to compare the effects of post-interaction counselling on low, middle and high ability students.

The point was made that career planning is a continuous process with stages

being interdependent. Assessments administered at short intervals within the process may not be measuring the effects of individual activities or stages in the process as much as the subject's state at that moment. With this in mind, the design of the experiment needs revision. Specifically, a longer time frame is required to more accurately assess the effects of treatments. The suggestion made here is that the same experimental period be used and that Groups A and C be treated in the same manner but that Group B receive no post-interaction treatment until after the experimental period is over. This would allow for a three month period of time to assess the effect of CHOICES with only pre-interaction counselling. It is necessary to remember, however, that under this design the long term measure is not just a measure of CHOICES effectiveness; it is also a measure of the subject's resourcefulness in further processing what the CHOICES interaction has provided.

The problem of using only a measure of indecision to assess program effectiveness must be addressed. An instrument that reveals process variables affecting indecision is required. In this repeated measures design, administration needs to be brief and easy, which is not possible with the several career maturity inventories presently in use.

Conclusions and Implications

Although this study did not decisively demonstrate the necessity of post-interaction counselling with CHOICES, it did show that CHOICES with a post-interaction guidance program made an impact on a group of students by generally reducing their indecision concerning career plans. The post-interaction program may broaden the diversity of approach that CHOICES itself offers; thus, the overall, integrated program can service a broader range of students. It may be true

that if the students were allowed the flexibility of working at their own pace, the beneficial impact would have been even greater. The rigid schedule imposed by the experimental situation prevented all students from fully taking advantage of each activity. Many students indicated that they had more work to do before they would feel satisfied. More flexibility in using the computer may have improved the benefits as well. CACG systems are optimally used when the client is able to return to the computer as needed, mixing computer interaction with other counselling activities. This study allowed for no computer use after post-interaction counselling commenced.

Probably the most interesting contribution of this study is its vivid illustration of the idiosyncratic nature of career development. This finding is in accordance with Wooler's (1985) assertion that occupational values are "idiosyncratic and labile". Statistical generalizations are often made about the effects of career interventions on groups, but little attention is given to the wide variety of responses of the individuals within those groups. In this study the individual responses varied widely. Some volatility of decision state should be expected with several highs and lows experienced before there is a relative stabilization on some career plan. One individual's pattern is usually quite different from another person's. Career development researchers need to place more emphasis on idiographic and phenomenological approaches to their work. The professional field of career counselling needs to be viewed as the facilitation of each client moving through his or her own unique process aided by interventions selected by the counsellor. Career planning is not a standardized program; it is a process unique to every individual.

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APPENDIX A

SUPPLEMENTARY INSTRUMENT

Name: _____

Date: _____

OCCUPATIONAL PREFERENCES

Based on what you now know about yourself and occupations, name up to 5 specific occupations that you think you would choose for yourself if you had to make a career decision today. You do not have to fill in all five.

Indicate how sure you are about each choice by circling the appropriate number and blackening in the appropriate spot on your answer sheet.

	Occupation	Not sure at all.			Very sure this is suitable.
21.	_____	1	2	3	4
22.	_____	1	2	3	4
23.	_____	1	2	3	4
24.	_____	1	2	3	4
25.	_____	1	2	3	4

Now skip to number 31 on your answer sheet and fill in your response to complete this statement:

31. At this point in time, my level of interest in planning for a career is _____.

Low	Mildly Low	Mildly High	High
1	2	3	4

(Item 19 from the other sheet may be answered on the back of this form.)

Continue to respond to items 32 through 37 on your answer sheet.

32. This career guidance program is helping me determine my career direction.

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

33. I have become more confused about my career direction in the last four weeks because the careers I favored before do not seem so suitable now.

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

34. I have become more confused about my career direction in the last four weeks because I have become aware of additional occupations I should consider.

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

35. I have become more certain of my career direction over the past four weeks because the results from the program have confirmed career ideas I had before.

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

36. I have become more certain of my career direction over the past four weeks because of information gained through the career guidance program.

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

37. Something happened in my life in the last four weeks, unrelated to the career guidance program, that has influenced my career direction.

Strongly Disagree	Disagree	Agree	Strongly Agree
1	2	3	4

APPENDIX B

PROGRAM EVALUATION

PROGRAM EVALUATION

Your Name: _____ Date: _____

What stage did you reach on the Career Funnel? (Circle most advanced stage.)

Shopping List
Short List
Favorites

How many occupations did you read about in the career files and career literature? (Estimate if unsure.) _____

How many Occupational Research Forms (yellow) did you complete? ("Complete" means at least 50% filled in.) _____

How many interviews did you conduct? _____

What was helpful to you in this career planning program?

What changes would you recommend to improve the program?

What did you enjoy about the program?

What do you plan to do in the way of career planning now that the program is finished?

APPENDIX C

LESSON PLANS

FOR THE

CAREER GUIDANCE PROGRAM

SESSION 1

Title: ORIENTATION

Objectives: As a result of this session, the participant will:

1. Understand some benefits of career planning.
2. Be tested (Test #1).
3. Understand the benefit of this program.
4. Have an overview of the project regarding groups and time frames.
5. Understand the purpose of the CHOICES system.
6. Understand the CHOICES Guide and complete the Self-Assessment unit.
7. Know the dates and times of his/her next three sessions.
8. Know that the experimentor appreciates his/her participation.

Materials:
1. Overhead projector.
2. Video player and monitor.
3. Cartoons on overhead transparencies.
4. Video cassette: A Journey into Your Future.
5. Test booklets, answer sheets, pencils.
6. CHOICES Guides.
7. Schedules made for each individual participant.

Mode: Large group in classroom.

Time: 65 minutes.

Activities: Introductions (5 minutes)

-Thank them for their participation.
-Introduce myself.
-Introduce supervisor.

Demonstrate the Need for Career Planning (5 minutes)

-Use a series of cartoons on overhead transparencies to humorously illustrate the problems of inadequate career planning (i.e. 80 % of work force is not happy, many feel trapped, confusion over many possibilities, etc.).

Administer Test I (Pretest) (10 minutes)

-Distribute Pencils, tests, answer sheets.
-Explain in detail how to complete.

Outline Project (5 minutes)

-Will help them identify several suitable occupations.
-Most meetings will be in small groups.
-Two treatment groups.
-Explain timing of treatments.
-If in the second group, do not consult with first group members.

Introduce CHOICES (10 minutes)

Video: A Journey into Your Future.
Show Part 1 which gives an overview of CHOICES and the career planning process.

Walk-Through CHOICES Guide (20 minutes)

-Distribute Guides.
-Overview all topics.
-Emphasize important topics using overheads.
-Complete all indicated topics in Self Assessment.

Distribute Schedules (5 minutes)

-Describe commitment involved. 8 meetings. 7 - 11 hours of homework.
-Schedules minimize meetings during classes.
-Encourage them to attend and to be punctual.
-See me now if unavoidable problems.

Review (2 minutes)

-Complete CHOICES Guide (Self Assessment) for the next meeting.
-Next meeting is to review the Self Assessment and complete the Guide.
-Room 306.
-Say: "Don't do any more work than you future is worth."

SESSION 2

Title: PRE-INTERACTION COUNSELLING

Objectives: As a result of this session the participant will:

1. Validate his/her responses for several key topics.
2. Assign priorities to the topics.

Materials:
1. Counsellor's Manual.
2. Guide books.

Mode: Small group (5-7) in seminar room.

Time: 65 minutes.

Activities: Explain Purpose (5 minutes)

-"Garbage in - garbage out."
-Emphasize need for accurate information on profiles.

Sharing Self-discoveries (5 minutes)

-Ask each person around the table to share one thing he/she discovered about himself/herself through the self-assessment.

Validate Temperaments (5 minutes)

Exercise:
1. Divide a sheet of paper into two columns.
2. Left column: List three accomplishments or things you do well, and two things you do not do well. Space them out down the page.
3. Right Column: For each item on the left, list two reasons that explain why. This will usually touch on strengths and weaknesses.
4. Compare these findings with the temperment factors identified on the profile. Adjust if necessary. Use Counsellor Manual when a clear definition of a factor is required.

Cautions on other Topics (5 minutes)

Earnings: Start low (5) to broaden possibilities.
Aptitudes: Self assessments tend to be low.

Validate Interests (15 minutes)

Exercise:
1. Divide a sheet of paper into two columns.
2. Left Column: List three favorite school subjects, two most disliked subjects and three favorite pasttimes. Space them out down the paper.
3. Right Column. For each time on the left, list two reasons that explain why. What is it about this that you enjoy/don't enjoy?
4. Compare these findings with the interest factors identified on the profile. Adjust if necessary. Use Counsellor Manual when a clear definition of a factor is required.

Validate Hours of Work/Travel (10 minutes)

Exercise: Fantasy Journey into the Future.
The students close their eyes, relax, then work through a typical day in their lives fifteen years in the future through guided visualization. The facilitator should emphasize lifestyle and working conditions as he guides the visualization. At the close of the exercise, participants compare the aspects of their fantasies with the factors chosen for Hours of Work/Travel. Adjust if necessary.

Determine Priorities (10 minutes)

-Turn to page 42.
-Chose the three most important topics.
-Chose the three least important topics.
-Identify #1, 2 and 3 within the top three topics.
-Continue with #4, 5 and 6....
-Transpose information to Bargaining Table.
-If topics with lower priorities are unimportant, drop them.
-Check the order: does it make sense?

Preparation for Next Meeting (1 minute)

-Next meeting is in the Computer Lab.
-Ensure Bargaining Table is complete.
-Read pages 43, 44 to be familiar with CHOICES interaction.

SESSION 3

Title: COMPUTER INTERACTION 1

Objectives: As a result of this session, the participant will:

1. Interact effectively with CHOICES.
2. Obtain several lists of occupations suited to the data provided in their self-assessments.

Materials:
1. Video player and monitor.
2. Video Cassette: A Journey into your Future.
3. Computers.
4. CHOICES disks.
5. CHOICES Master Lists.

Mode: Small group (4 or 5) in Computer Lab.

Time: 65 minutes.

Activities: Pre-Session Preparation (10 minutes)

-Boot up the CHOICES system, SEARCH route on five computers.

Introduction (10 minutes)

-Video: A Journey into your Future.
-Show Part 2, which shows a typical interaction with CHOICES.

Computer Interaction (50 minutes)

Circulate around room to:
-ensure a good start.
-troubleshoot difficulties.
-suggest profile changes to improve results.

Finish-Off (10 minutes prior to end)

-Assign homework. Tell participants to complete page 45 in the CHOICES Guide and to read page 47. Ask participants to use the space below the Bargaining Table to list occupations for which they want more information.
-Tell participants to finish their sessions.
-Retrieve each counsellor summary and file.

SESSION 4

Title: COMPUTER INTERACTION 2

Objectives: As a result of this session, the participant will:

1a. Use the SPECIFIC route of CHOICES to acquire information on occupations from their lists.

and/or

1b. Continue to use EXPLORE to obtain more appropriate lists of occupations.

2. Be tested (Test #2).

Materials:
1. Computers.
2. CHOICES disks.
3. CHOICES Master Lists.
4. Test booklets, answer sheets, pencils.

Personnel: Two resource people familiar with CHOICES to assist in providing individual assistance to students.

Mode: Large group in Computer Lab.

Time: 65 minutes.

Activities: Pre-session Preparation (20 minutes)

-Boot up CHOICES. SEARCH route on about 25% of the computers; INFORMATION route on about 75%.

Introduction (5 minutes)

-Outline the period: 40 minutes on computers, 20 minutes for testing.
-Explain choice of routes to use: EXPLORE for more bargaining; SPECIFIC for information on occupations.
-Direct students to appropriate computers.

Computer Interaction (40 minutes)

-Circulate to provide individual assistance.
-Announce finish 5 minutes before time is up.
-Retrieve Counsellor Summaries.

Assign Homework (2 minutes)

-Page 47 and 48 of CHOICES Guide.

Administer Test (15 minutes)

-Distribute materials.
-Provide instructions.
-Collect materials.

Assign to Groups (3 minutes)

-Remind students about two treatment groups.
-Review timelines for each group.

SESSION 5

Title: POST-INTERACTION 1

Objectives: As a result of this session, the participant will:

1. Be able to use occupational reference materials.
2. Narrow their preferences to five occupations.
3. Be tested (Group B only).

Materials:
1. Career Funnel forms.
2. Occupational Research forms.
3. Occupational Reference Materials (Library).
   -C.C.D.O. Volume 1
   -Career Files containing Occupational Profiles.
   -Job Futures.
   -University Guides.
4. CHOICES Master List.
5. Testing booklets, answer sheets, pencils.

Mode: Small groups (5-8) in seminar room and library.

Time: 65 minutes.

Activities: Administer Test #3 (Group B only)

-Distribute materials.
-Provide instructions.
-Collect materials.

Introduction (3 minutes)

-Discuss: "How many of you have given serious thought to your careers after the last CHOICES session?"
-Emphasize need for occupational research in order to gain a sense of ownership for one's occupational choices.
-The next four sessions will be devoted to occupational research.

Introduce Career Funnel (2 minutes)

-Purpose: Helps in decision making by narrowing down many ideas into several solid choices.
-Three parts:
1. Shopping List: Ten items that appear interesting.
2. Short List: Five items that are worthy of more serious consideration.
3. Favorites: Two items that are definite possibilities and require in-depth research.

Complete the Shopping List (15 minutes)

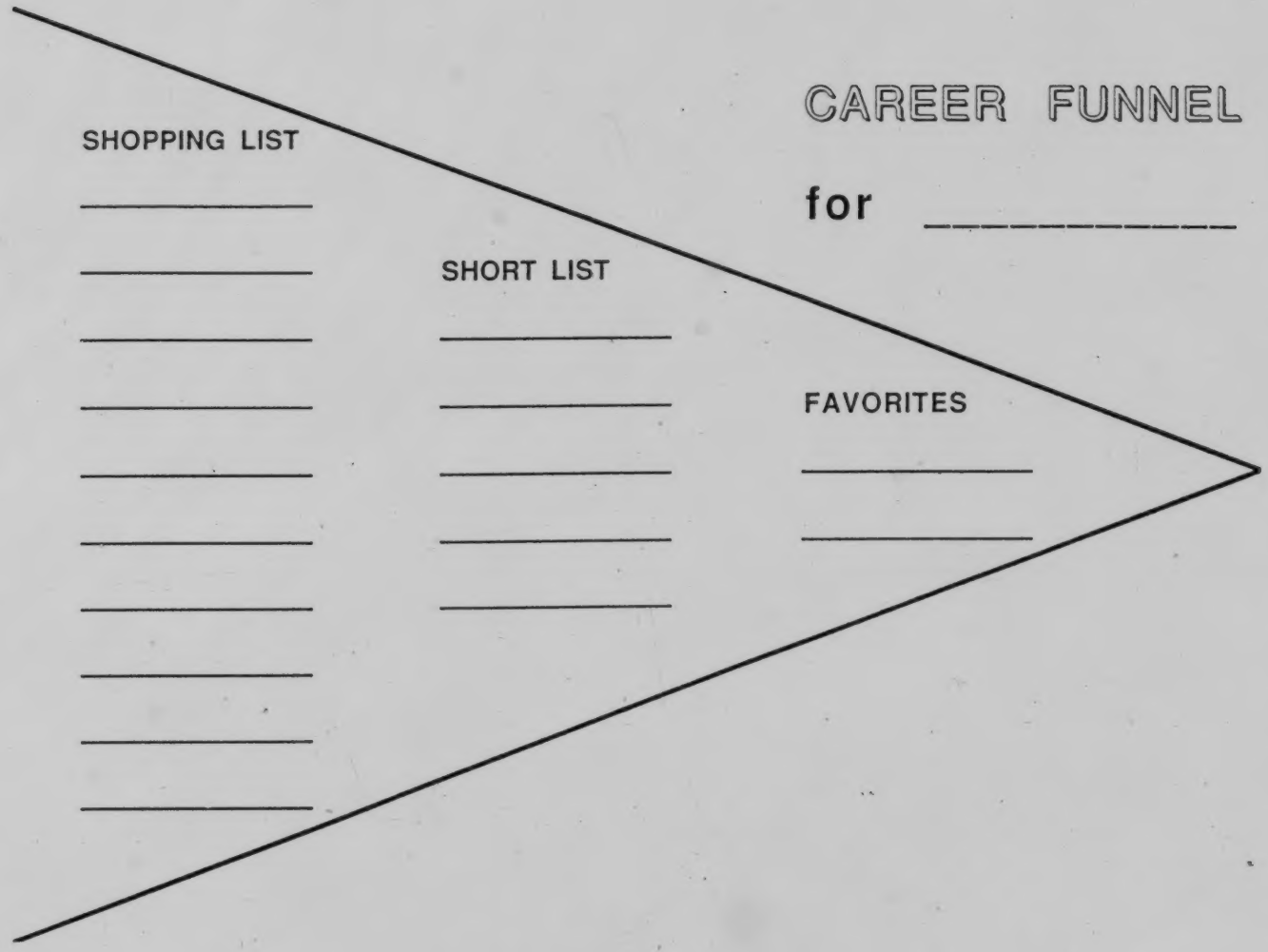
-Find your best lists on your CHOICES printout.
-Consider the factors used to produce these lists. Do they present a valid picture of yourself?
-Transfer any occupations of interest from these lists to your Shopping List.
-Caution: Do not pass over an occupation on the basis of stereotypes or because you know little about it.
-Include similar occupations from the yellow section in the CHOICES MasterList.
-Include any occupations you have dreamed about, even if they are not on the CHOICES lists.
-Fill in your Shopping List now.

Complete the Short List and Favorites (45 minutes)

-Explain how to look up every occupation on the Shopping List using C.C.D.O. Volume 1 or the career files. If the occupation is of high interest, write it in the Short List.
-Demonstrate the use of the C.C.D.O., giving special attention to the C.C.D.O. numbering system.
-Explain how to use the Occupational Research Form to guide investigations into each occupation on the Short List.
-Demonstrate the use of key reference materials: Occupational files, Job Futures, University guides.
-Discuss: "Where else could you find information on an occupation?"
-Assign homework:
    1. Complete Short List.
    2. Complete five Occupational Research Forms.
    3. Be prepared to share briefly about one of your occupations.
-Work on homework for the remainder of the session. Provide assistance as needed.

CAREER FUNNEL

for _____



OCCUPATIONAL TITLE

C.C.D.O. NUMBER

JOB DESCRIPTION (Be thorough. Use several resources such as C.C.D.O., Occupational Profiles, CHOICES, Future, etc.)

WORK ENVIRONMENT (Indoor / Outdoor, physical environment, contact with people, etc.)

EDUCATION / TRAINING required to enter this occupation.

LOCATIONS where education/training can be recieved.

SIMILAR OCCUPATIONS

SPECIALIZED BRANCHES OF THIS OCCUPATION

SESSION 6

Title: POST-INTERACTION 2

Objectives: As a result of this session, the participant will:

1. Select two favorite occupational possibilities.
2. Understand the purpose and procedure of performing an information interview.
3. Plan and conduct two information interviews.

Materials:
1. "Setting Up Interviews" information sheets.
2. "Information Interview Plan" forms.
3. "Information Interview Format" forms.

Mode: Small groups (5 - 8) in seminar room.

Time: 65 minutes.

Activities: Check up on Research (15 minutes)

-Ask how research is proceeding.
-Ask each participant to share ideas from one occupation he/she is working on. Ask: "How does this occupation fit with you?"

Choose Favorites (10 minutes)

-Review Short List.
-Select two best occupations.

Instruction in Information Interviewing (30 minutes)

-Emphasize the importance of tapping into first hand experience by talking to people working in your prospective occupation.
-Knowing what to ask:
1. Discuss: "What would you like to know about this occupation?"
2. Distribute Information Interview Forms. Discuss items.
3. Distribute "Setting up Interviews". Discuss points.
4. Tips for conducting interviews: handshake, ask questions, take notes, "thank you".

-Knowing who to ask:
1. Try family and personal contacts, yellow pages in the phone book, university staff, service clubs.
2. Assist any students who cannot find contacts.
3. Use "Information Interview Plan" forms. Complete two forms, one for each occupation.

SETTING UP INTERVIEWS

1. Contact your person soon! (Within the next two days.)

People need lead time; most will not be able to see you on a day's notice. Your goal is to interview two people by the time of our next meeting in the first week of May. This takes time.

2. What to say? I have contacted most of these people but you should assume that they do not know who you are. Introduce yourself and your purpose. Try something like this:

> "Hello. My name is _____. I'm a student attending Old Scona Academic High School. I'm involved in a career planning program in which we are to interview people working in our fields of interest. Could I meet with you in order to see and talk about what you do?"

After you have set up the appointment, thank them.

3. Return the bottom half of your blue form to the CHOICES box in the main office. This lets me know that you're not having difficulties.

4. When you go to your interviews . . .

-Be prompt. Try to be 5 minutes early.

-Use your Interview Form and take notes.

-Thank the person for giving you his/her time.

INFORMATION INTERVIEW PLAN

My Name: _____

Occupation to be investigated: _____

I plan to contact: (Name) _____

who works at (Agency) _____

(Phone) _____

Interview set up for (Date) _____

(Time) _____

(Place) _____

INFORMATION INTERVIEW PLAN

My Name: _____

Occupation to be investigated: _____

I plan to contact: (Name) _____

who works at (Agency) _____

(Phone) _____

Interview set up for (Date) _____

(Time) _____

(Place) _____

INFORMATION INTERVIEW FORM

Name of Person: _____

Occupational Title: _____

Place of Work: _____

Date of Interview: _____

1. Describe what you do in a typical day at work from the time you start until quitting time.

2. Describe the place in which you work.

3. Where do people in this occupation typically find employment?

4. What advantages do you see in your job?

5. What disadvantages do you see in your job?

6. Are there any hazards in this line of work?

7. In what specialized areas can a person work in this occupation?

8. How did you get into this occupation?

9. What education or training is required to enter this occupation?

10. What other experience is helpful in preparing for this occupation?

11. In what ways can you advance in your job?

12. What is the starting wage and average wage for this occupation?

13. Does this occupation have a secure future?

14. How does your job affect you?

15. What are the three most important qualities a person needs to do well in this occupation?

Thank you for your help.

SESSION 7

Title: POST-INTERACTION 3

Objectives: As a result of this session, the participant will:

1. Resolve any problems in the information interviewing process so interviews can be completed.
2. Integrate information obtained on a favored occupation.
3. Clarify his/her feelings toward that occupation.
4. Consider problems in his/her occupational choices.

Materials: Flower diagrams.

Mode: Small groups (5 - 8) in seminar room.

Time: 65 minutes.

Activities: Check on Interviews (15 minutes)

-Discuss successes and difficulties in interviews. Troubleshoot difficulties.
-Each participant shares findings of one interview.
-Ask those with no appointments made to get assistance with this directly after this session.

Visualization Exercise (10 minutes)

This exercise allows the participant to integrate the information they have obtained on an occupation in an experiential manner. The participants relax and focus on a favourite occupation. Each is guided through an imaginary day in the future, with himself/herself established in this occupation. The visualization includes commuting to and from work, awareness of hours and length of work day, work environment, duties, relationships with boss and co-workers, feelings at end of the day, location and type of home, standard of living, family situation, free time available, recreational activities, social activities, etc. At the end, ask "Consider everything in this day. Is this the way you want your life to be?"

Flower Exercise (20 minutes)

-This exercise allows the participant to systematically consider the different aspects of an occupation.
-Distribute Flower diagrams.
-Explain each part of the flower and have participants fill in each part after it is explained.

1. Center - write your name and the occupation you are considering.
2. Petals - express the beauty of the flower. In each petal, write something you like or could accomplish in this occupation.
3. Leaves - draw strength. In each leaf, write an interest or strength that would help you to do well in this occupation.
4. Roots - draw nourishment and support the flower. Beside each root, write a preparatory activity or asset (courses, experience, personal qualities, etc.) needed to enter this occupation. Place a check mark beside each root that you have developed or are willing to develop.
5. Weeds - threaten the flower. Write a problem or something you do not like about the occupation in each weed. Place a check mark beside each problem you feel you can live with.

-Inability to fill in parts of the flower may indicate that not enough is known about the occupation and that more research is required.
-Roots or weeds without a check mark placed beside them may indicate problems with this occupation that are serious enough to reject it as an alternative.

Career Roadblocks (10 minutes)

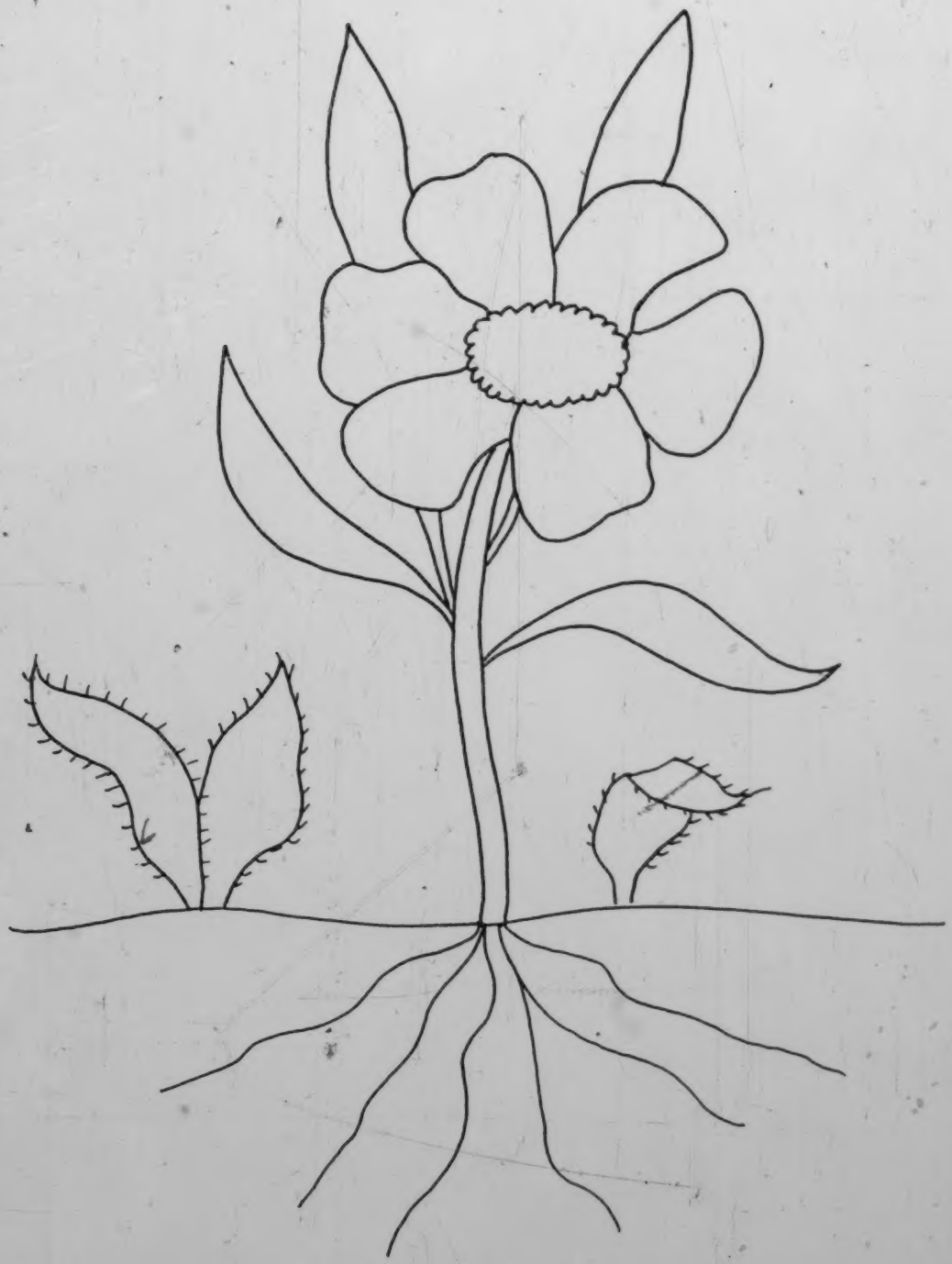
Vignettes stimulate discussion about problems in career development. Read each vignette and ask for ideas on solving the situation. Developing awareness of possible difficulties is the purpose here, so resolution of the problem is not required.

Three Circles Illustration (5 minutes)

This illustrates that a good career decision integrates three important factors: (1) self knowledge; (2) career information; and (3) the expectations of significant others.
-Draw on chalkboard.

Housekeeping Notes (5 minutes)

-Note that the next session is the last.
-Note that they will be asked how much of the work they completed.
-Establish contacts and set up interviews for those who have not completed any interviews.



SESSION 8

Title: POST-INTERACTION 4

Objectives: As a result of this session, the participant will:

1. Examine some common misconceptions about careers.
2. Know how to continue the career planning process on his/her own.
3. Plan for entry into an occupation.
4. Know that the experimenter appreciated his/her participation.
5. Be tested (Test #3 for Group A, Test #4 for Group B).

Materials:
1. Career myth cards (Each card has a statement containing a career myth or misconception).
2. Test booklets, answer sheets, pencils.
3. Program Evaluation forms.

Mode: Small groups (5 - 8) in seminar room.

Time: 65 minutes.

Activities: Check on Interviews (10 minutes)

-Check on progress.
-Ask each participant for something important they learned through the interviews.

Career Myths (20 minutes)

-Place first set of cards on the table.
-Have participants select a statement that they find interesting.
-Take turns presenting a statement then discussing it.
-Repeat using second set of cards.

Where to Go from Here? (5 minutes)

1. If you have not decided:
   -You may need more time spent in research.
   -You may be taking longer because some inappropriate ideas had to be dislodged.
2. If a new idea comes:
   -Use the same process to research it as you did in the last few weeks.
   -For additional help, try the school counsellor or librarian.
   -Introduce the Career Information Hotline (422-4266).
3. If you have decided on an occupation, develop an action plan.

Action Planning (10 minutes)

The Pyramid Exercise.

1. Draw a large pyramid on a sheet of paper. The pyramid should have three levels with the bottom level divided into three sections.
2. Write the name of your occupational goal in the top level.
3. Entry into this occupation is based on educational or training programs after high school. Write them in the second level.
4. Entry into this program depends on what you are doing right now in your high school years. Looking at the bottom level of your pyramid,
   - -List the 30 level courses you need to enter that post-secondary program in the left section. Include required marks.
   - -Write the amount of money you require to complete the post-secondary program in the middle section. Outline how you will acquire this money.
   - -List the skills and personal qualities that you need for success in the post-secondary program. Circle those you need to develop. How will you develop them?

Thank the Participants (5 minutes)

Administer Test and Program Evaluation (5 minutes)

-Distribute materials.
-Provide instructions.
-Distribute Program Evaluations.
-Collect materials.

APPENDIX D

STUDENT RESPONSES

FROM THE

PROGRAM EVALUATION

"What was helpful to you in this career planning program?"

GROUP A

Yes, it was helpful. Before this program I had some choices (chef) but I had no information on it. It opened many doors for me. Thanks.

-new perspective of favored careers
-realistic approach to career planning learned

It stimulated me to do research.

-organization, influence as in drive to do it
-interest

The interviews and the conversation with the groups.

Although I was not introduced to any radically new ideas, the program helped to assure me that prior career plans were suitable.

-Finding interest and possibilities of careers for me.

-consider other careers
-discuss aspects of career to consider (eg. your ability or likes compared with the necessity for the job)

I found out what occupations were not for me, but am still not positively sure what I want to do for a career.

The description of the different occupations and the interviews.

-interviews.
-CHOICES booklet - considered aspects in a job that I didn't think mattered before.

Interviews were very helpful, they were much better than the Occupational Research forms.

The most helpful element of this career planning program was the opportunity to talk to people in the field. Reading about the occupation is not enough.

-the conducting of interviews in the workplace
-the suggestion of possible alternatives for a career
-the research of a particular occupation.
-valuable career search experience.

It confirmed my ideas that I had about my career goals in the past, and also provided opportunities for new choices.

I got to interview a person and thus learned about his career.

What was helpful was that I actually got to talk to someone in the career. In addition, I learned more about requirements and daily routines of the job.

-it determined that what I was thinking was on the mark
-it helped solidify some decisions

Everything, but especially the flower and other activities to find out requirements for my career not just to do with education but with my own potential etc.

Advanced information about the future careers I may plan to advance in.

-guided research
-narrowing down my abilities, interests, etc.
-matching the above to a career.

The career planning program helped me discover a wider range of occupations which are rather interesting.

The interview and sessions

It helped me to gain information in the occupations I was interested in.

GROUP B

The interviews

-the careers shown to me, and also the interviews conducted in the field.
-it also helped me on how to research a specific job.

Information needed

CHOICES Program
Research Program
Interview Program

When I interviewed the special ed. teacher, I learned about things I had never considered before.

I decided against some careers I had earlier considered being.

It got me thinking about what I want to do with my life.

I'd never done anything like it, it was completely new & very helpful research

interviews would have helped, had I done them though.
The information in filling out each career.

-discovering the different sources of information that are available for career planning
-learning some things about a few jobs that interest me

Yes, in that it was illuminating. It provided a more in-depth perspective of the alternatives one has in the future.

-Researching the occupation and being able to learn more about it.
-interviews, helped me decide which of the two I felt suited me.

interviews
Research

The interviews

The fact that I researched more occupations and started thinking more about my future.

-Different occupations to consider
-More information

-The inputting of interests to find out what I was like
-was fun!!

-files + literature
-discussion
-interview should help

-interviews
-learning about available resources
-inspiring me to do something

-interviews
-general group discussions

-Broadened my horizons
-Helped me see more than before

Yes.

A bit - I still don't know what I want to do as a career.

Well, I was forced to think about my career and I gained a lot of info. I think I'm more sure about it now.